

# Dolly the Cloned Sheep

## Key Words

clone	an exact copy
implanted	placed firmly into something
feasibility	possibility; likelihood

On February 23, 1997, newspaper headlines worldwide announced the birth of Dolly the sheep. Why did the birth of a sheep attract so much publicity? Dolly's **celebrity** can be **attributed** to the fact that her existence **constituted** a scientific breakthrough. She was not conceived as ordinary sheep are; in fact, Dolly did not even have a father. How did Dolly's mother become pregnant without a male sheep? It was possible with the assistance of Scottish scientist Ian Wilmut and his **colleagues**, who **comprised** the first team of people to successfully use the DNA of an adult mammal to create a **clone**.

Dolly's creation was a very complicated process that involved three other sheep and the hard work of many scientists. These scientists attempted 277 times to clone a sheep before they finally succeeded with Dolly. The scientists on Wilmut's team preserved cells from the **udder** of a **deceased**, six-year-old sheep. They extracted the **nucleus** of one of these cells and **fused** it with an empty egg cell from a second sheep to create an **embryo** that contained the exact DNA of the sheep that supplied the udder cell. The scientists then **implanted** the embryo into a third sheep that eventually gave birth to Dolly. The sheep that donated the empty egg was not related to Dolly nor was the sheep that performed the role of **surrogate mother**. Dolly's only relative was her clone: the sheep that supplied the udder cell. Dolly was an exact copy of this sheep.

**Despite** her unusual entry into the world, Dolly lived a relatively normal life and even gave birth to six lambs, which she conceived without **the help** of science. Unfortunately, Dolly showed

signs of **premature** aging, which was a possibility her creators predicted. She developed arthritis at the age of five, and by **age six** she displayed signs of lung disease. Dolly died on Valentine's Day of 2003, reaching only half the age expected for sheep of her breed. Wilmut said he could not be sure whether the fact that she was a clone contributed to her medical problems.

Creating Dolly was an amazing scientific accomplishment, because it proved the **feasibility** of creating a clone of an adult mammal. Prior to Dolly, scientists had cloned other mammals in the embryonic stage, before the cells had a chance to specialize into particular types of cells. Dolly's birth marked the first time a cell from an adult, an already specialized cell, was used to successfully create an apparently healthy clone. The success delighted many who could now envision additional advances and **appalled** others who feared misuse of the technology. Regardless of the **controversy**, Dolly's birth will always represent a **significant** event in science and in history.



## Dolly the Cloned Sheep

### Listening Comprehension Questions

#### Identifying the Main Idea

1. What is the main idea of the story?
  - ☒ a. The birth of Dolly proved that it is possible to **clone** an adult mammal.
  - ☐ b. Dolly's creation required the patience and skill of talented scientists.
  - ☐ c. Dolly's creation sparked controversy over the practice of artificial clothing.

#### Recalling a Fact

2. Who was Dolly's only relative?
  - ☐ a. her surrogate mother
  - ☒ b. the sheep that donated the udder cell
  - ☐ c. the sheep that donated the empty egg

#### Context Clues

3. What does fused mean in the story?
  - ☒ a. mixed or melted together
  - ☐ b. protected from too much electricity
  - ☐ c. lit the end of an explosive

#### Text Connections

4. Why was Dolly's birth significant?
  - ☒ a. Because she was the first clone of an adult mammal.
  - ☐ b. Scientists thought that cloning a sheep was impossible.
  - ☐ c. Dolly proved to scientists that clones could reproduce.

#### Connecting the Author's and Reader's Ideas

5. Why do you think Dolly showed signs of premature aging?

received udder cells from 6 yrs old sheep

#### Cause and Effect

6. What did scientists think caused Dolly to age prematurely?
  - ☐ a. She gave birth to six lambs.
  - ☐ b. She developed arthritis early on.
  - ☒ c. She was cloned using other mammals DNA.

### Attending to Details

7. Dolly's creation involved three other sheep.

Write how each of these sheep was involved in creating Dolly.

- a. sheep one: preserved udder cells
- b. sheep two: create an embryo <sup>(empty egg cell)</sup> w/ exact DNA
- c. sheep three: Surrogate mother

### Processing Information

8. Why did Dolly's success delight some and appall others?

good 1st time a cell from an adult was used to create a healthy clone  
bad → fear misuse of technology

### Finding Supporting Details

9. Dolly encountered medical problems in her life. Write 3 facts from the story that support his statement.

- A. reaching only 1/2 the age of expectation
- B. arthritis @ 5
- C. lung disease @ 6

### Author's Purpose

10. Why did the author write this passage?

- a. to persuade others to use cloning techniques
- b. to tell a story about sheep having babies
- c. to inform others of a significant even in science and in history